



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : G10L 3/00		A1	(11) International Publication Number: WO 95/27976
			(43) International Publication Date: 19 October 1995 (19.10.95)
(21) International Application Number: PCT/US95/04454		(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ, UG).	
(22) International Filing Date: 11 April 1995 (11.04.95)			
(30) Priority Data: 9407018.1 11 April 1994 (11.04.94) GB 08/300,929 2 September 1994 (02.09.94) US			
(71) Applicant: HAL TRUST, L.L.C. [US/US]; Suite 314, Two Radnor Station, 290 King of Prussia Road, Radnor, PA 19087 (US).		Published <i>With international search report.</i>	
(72) Inventors: KAYE, Jonathan; 56 Witherington Road, London N5 1PP (GB). WILLIAMS, Geoffrey; 54 South Primrose Hill, Chelmsford, Essex CM1 2RG (GB).			
(74) Agent: ELBING, Kristofer, E.; Wolf, Greenfield & Sacks, P.C., 600 Atlantic Avenue, Boston, MA 02210 (US).			
(54) Title: COMPUTER SYSTEM AND COMPUTER-IMPLEMENTED PROCESS FOR PHONOLOGY-BASED AUTOMATIC SPEECH RECOGNITION			
<pre> graph LR 42[42 SPEECH SIGNAL] --> 48[PRELIMINARY WORD BOUNDARY DETECTOR] 48 --> 50[50 SPEECH SIGNAL AND MARKERS] 50 --> 52[52 UNIVALENT ELEMENT AND STRUCTURE DETECTOR] 52 --> 54[54 SYMBOLIC REPRESENTATION] 44[44 WORDS] --> 56[56 LEXICON PREPARATION SYSTEM] 56 --> 58[58 LEXICON] 58 --> 55[55 LEXICAL MATCHING SYSTEM] 55 --> 46[46 RECOGNIZED WORD] </pre> <p style="text-align: center;">40</p>			
(57) Abstract			
<p>The present invention is based on the use of linguistic, especially phonological, knowledge to guide the speech recognition process. A speech signal containing an utterance is received and linguistic cues in the speech signal are detected. From these detected linguistic cues, a symbolic representation of the contents of the speech signal is generated. This symbolic representation comprises at least one word division, wherein each word division consists of an onset-rhyme pair and associated phonological elements. These phonological elements are univalent, may appear in all languages and are distinguishable from each other and directly interpretable in the speech signal. A lexicon of predetermined symbolic representations is provided for words in a particular language. A best match to the generated symbolic representation is found in the lexicon, thereby recognizing the spoken word.</p>			